

AD-753 555

STAGED DIFFUSOR FOR SLOWING DOWN GAS  
FLOW

M. P. Ryabokon

Foreign Technology Division  
Wright-Patterson Air Force Base, Ohio

6 December 1972

DISTRIBUTED BY:

**NTIS**

National Technical Information Service  
U. S. DEPARTMENT OF COMMERCE  
5285 Port Royal Road, Springfield Va. 22151

AD753555

FTD-HT-23-1304-72

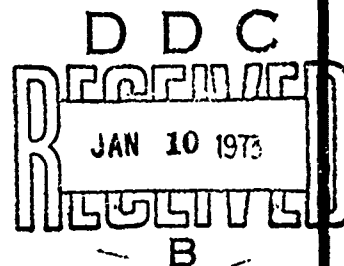
## FOREIGN TECHNOLOGY DIVISION



STAGED DIFFUSOR FOR SLOWING DOWN GAS FLOW

by

M. P. Ryabokon'



Approved for public release;  
distribution unlimited.

Reproduced by  
**NATIONAL TECHNICAL  
INFORMATION SERVICE**  
U S Department of Commerce  
Springfield VA 22151

UNCLASSIFIED  
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Foreign Technology Division Air Force Systems Command U. S. Air Force		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE  STAGED DIFFUSOR FOR SLOWING DOWN GAS FLOW			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Translation			
5. AUTHOR(S) (First name, middle initial, last name)  Ryabokon', M.P.			
6. REPORT DATE 24 May 1969		7a. TOTAL NO. OF PAGES 26	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)  FTD-HT-23-1304-72	
9. PROJECT NO. G101		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT  Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY  Foreign Technology Division Wright-Patterson AFB, Ohio	
13. ABSTRACT  In the central part of the duct, on the flow side, are several (4-6) gasproof plates, the width of which is 2-3% that of the duct. The positioning of the plates is arrived at experimentally according to the best velocity field beyond the diffuser, thus improving the velocity field. The diffuser comprises smooth expansion sector with straight sides 1, sudden expansion duct 2 and grid 3 in the broad part of the duct. In the central part of the grid are plates as described above. This causes a considerable local rise in resistance and therefore improves the velocity field beyond the diffuser. AA2006992			

DD FORM 1473  
1 NOV 61

I

UNCLASSIFIED  
Security Classification

### Faculty Classification

II

**Security Classification**

**FTD-HT- 23-1304-72**

## **EDITED TRANSLATION**

FTD-HT-23-1304-72

STAGED DIFFUSOR FOR SLOWING DOWN GAS FLOW

By: M. P. Ryabokon'

English pages: 2

Source: USSR Patent No. 280002 (Appl. No.  
1337343/40-23, May 24, 1969),  
1970, 2 pages.

Requester: AEDC

Translated by: Bernard L. Tauber

Approved for public release;  
distribution unlimited.

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

**FTD-HT- . 23-1304-72**

Date 6 Dec 19 72

11 *III*

## STAGED DIFFUSOR FOR SLOWING DOWN GAS FLOW

M. P. Ryabokon'

The invention pertains to experimental aerodynamics, in particular to the equipment of wind tunnels.

Staged diffusers are known which contain a short expansible section with straightline generatrices and a suddenly expanding duct and a grid with a coefficient of resistance equal to two installed in the broad part of the duct.

In the proposed diffuser, to improve the velocity field, installed behind the diffuser in the central part of the grid from the direction of the flow are several (three-four) impenetrable plates, the width of which is 2-3 percent of the size of the grid, in which regard the mutual arrangement of the plates is selected experimentally in accordance with the best velocity field behind the diffuser.

The staged diffuser for slowing down a gas flow is portrayed schematically on the drawing.

The diffuser contains a section of smooth expansion with straightline generatrices 1, sudden expansion of the duct 2, and

grid 3 installed in the wide portion of the duct. Installed in the central portion of the grid, from the direction of flow, are several (four-six) solid plates 4, the width of which is 2-3% of the size of the grid. The presence of the plates leads to a considerable local increase in resistance and, consequently, to an improvement in the velocity field behind the diffuser.

#### Subject of Invention

The staged diffuser for slowing down a gas flow, which contains a section of smooth expansion with straightline generatrices, sudden expansion of the duct, and grid with hydraulic resistance equal to two, *which is distinguished* by the fact that to improve the velocity field behind the diffuser, installed in it in the central part of the grid from the direction of the flow are several (four-six) impenetrable plates, the width of which is 2-3% of the size of the grid, in which regard the mutual arrangement of the plates is selected experimentally in accordance with the best velocity field behind the diffuser.

